

REMARKS

Applicant has amended claims 1, 12, 43, 44, 48, and 49 as set forth above.

Applicant notes with appreciation the Office's indication that claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant also appreciates the telephone interviews with the Examiner on June 17, 2005, and June 22, 2005, during which US Patent No. 4,600,048 to Sato et al. (Sato) was discussed. The summary of these interviews with the Examiner is set forth in the remarks below. Applicant also respectfully requests the status of claim 31 which was not addressed in the outstanding office action. In view of the above amendments and the following remarks, reconsideration of the outstanding office action is respectfully requested.

The Office has rejected claims 1-5, 7, 8, 10-12, 24-28, 30, and 32 under 35 U.S.C. 102(b) as being anticipated by Sato and has rejected claims 6, 9, 29, 42, 45-47, and 50-51 under 35 U.S.C. 103(a) as being unpatentable over Sato. The Office asserts that Sato discloses: a system for controlling solidification of the molten metal comprising a substrate (1), a writing system (9), an erasing system (17); the writing system is for imposing a thermal gradient on the substrate; wherein the writing system is a laser, a drive system (2), a container for molten metal, a nozzle connected to the container, and a pressure system to apply pressure dispense on the nozzle on to the substrate (figure 1). Additionally, the Office asserts that Sato fails to teach casting with a belt and a prism to reflect light, but asserts that Sato discloses that strip casting can be used in either a roller or a belt and discloses using a laser with a condenser lens.

Sato does not disclose or suggest, "a writing system that imposes a gradient pattern comprising multiple elements on at least a portion of at least one of the substrate on which the molten material is deposited and the molten material, wherein the gradient pattern comprising multiple elements contacts and affects solidification of the deposited the molten material" as recited in amended claims 1 and 24. The Office's attention is respectfully directed to col. 3, lines 18-21 in Sato which discloses, "Similarly to these prior arts, the present invention is also directed to a method for casting a molten metal on a chill body while heating the chill body to keep its temperature within the proper range" (See also col. 6, lines 26-31 in Sato). As described at col. 3, line 45-48 in Sato, the high density energy source is used to heat the surface layer of the chill body. Further, as illustrated in FIGS. 3 and 4 and discussed at col. 4, lines 26-36 and col. 5, lines 21-66, the methods disclose that the many reflections smear or spread the laser beam to heat the chill body, not to form any type of gradient pattern. Accordingly, the only teaching in Sato is for a diffuse heating system for

providing a general heating of a surface of the chill body using a high density energy source, i.e. a laser. Nowhere does Sato teach or suggest a writing system as claimed or, in particular, any type of gradient pattern comprising multiple elements that contacts and affects solidification of the deposited the molten material.

The present invention provides a process and system for high-speed (throughput) casting of a flat product of high quality which is achieved through the use of gradient patterns comprising multiple elements. As described in paragraph 38 in the above-identified patent application, the gradient pattern affects the solidification of the molten material and thus the resulting end product. By using a gradient pattern on the substrate, a high quality ribbon product can be produced. Some examples of thermal gradient patterns which could be imposed on substrate 12 are illustrated in FIGS. 5A-5D in the above-identified patent application.

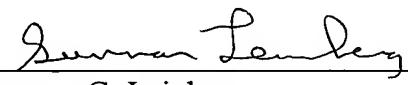
Accordingly, in view of the foregoing amendments and remarks, the Office is respectfully requested to reconsider and withdraw the rejection of claims 1 and 24. Since claims 2-12 depend from and contain the limitations of claim 1 and claims 25-32 depend from and contain the limitations of claim 24, they are distinguishable over the cited reference and patentable in the same manner as claims 1 and 24.

The Office has objected to claims 43-44 and 48-49 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Accordingly Applicant has amended claims 43-44 and 48-49 to be rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the foregoing amendments and remarks, the Office is respectfully requested to reconsider and withdraw this objection.

In view of all of the foregoing, applicant submits that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

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Gunnar G. Leinberg
Registration No. 35,584

NIXON PEABODY LLP
Clinton Square, P.O. Box 31051
Rochester, New York 14603-1051
Telephone: (585) 263-1014
Facsimile: (585) 263-1600
R848039.1